§15.247 (b) (1) - MAXIMUM PEAK OUTPUT POWER

Standard Applicable

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Measurement Procedure

1. Place the EUT on the turntable and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

Test Equipment

Manufacturer	Description	Model No.	Serial No.	Calibration Date
HP	Spectrum Analyzer	8565EC	3946A00131	2004-08-06
HP	Plotter	7475A	2517A05739	N/R

* Statement of Traceability: BACL Corp. attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Environmental Conditions

Temperature:	22° C
Relative Humidity:	59%
ATM Pressure:	1020 mbar

The testing was performed by Jerry Wang on 2005-06-08.

Measurement Result

Base

Channel	Frequency MHz	Max Peak Output Power (dBm)	Max Peak Output Power (m Watt)	Limit m watts	Result
Low	2401.80	16.67	46.45	1000	pass
Mid	2440.16	16.83	48.19	1000	pass
High	2479.40	17.17	52.12	1000	pass

Handset

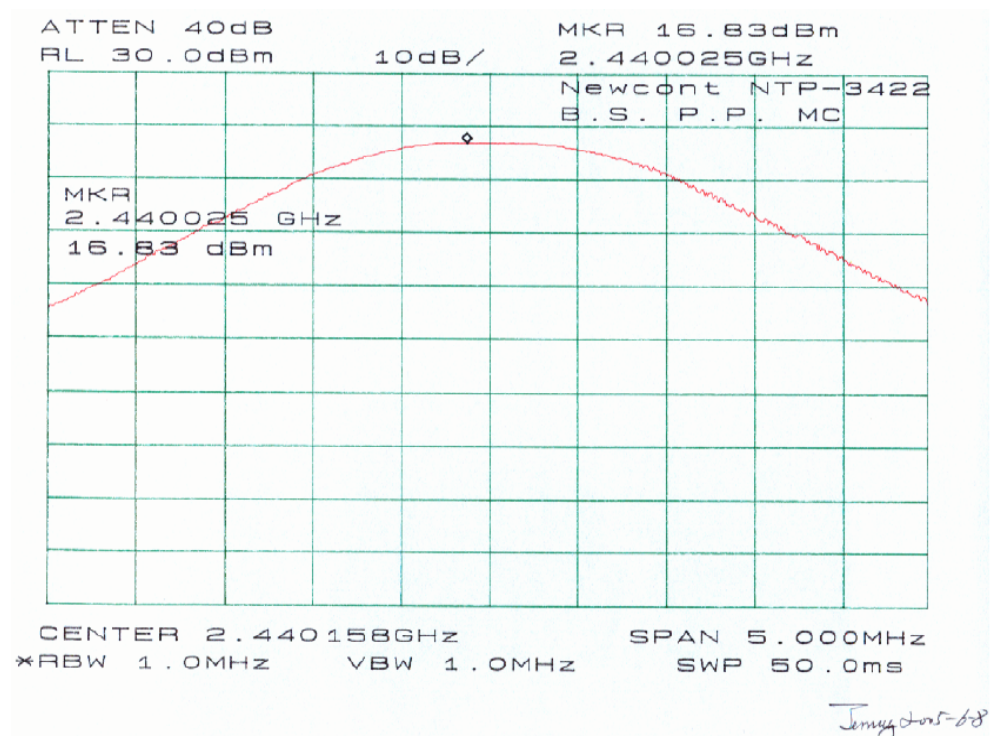| Channel	Frequency MHz	Max Peak Output Power (dBm)	Max Peak Output Power (m Watt)	Limit m watts	Result
Low	2401.80	15.67	36.90	1000	pass
Mid	2440.16	16.83	48.41	1000	pass
High	2479.40	16.50	48.14	1000	pass

Plots of Maximum Peak Output Power

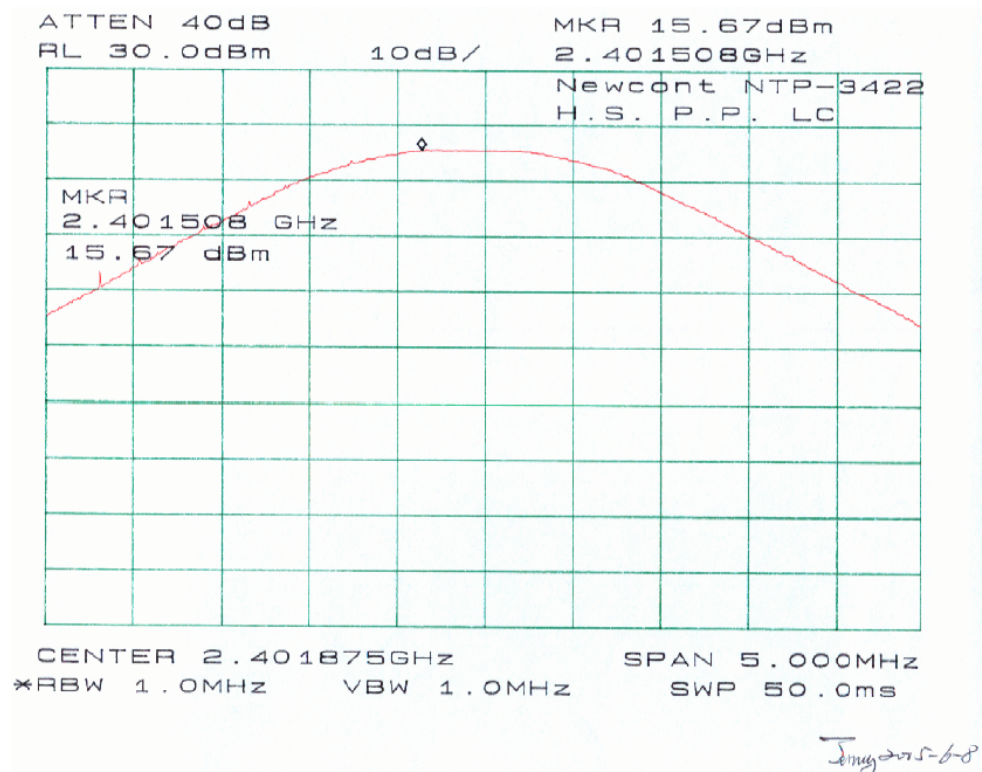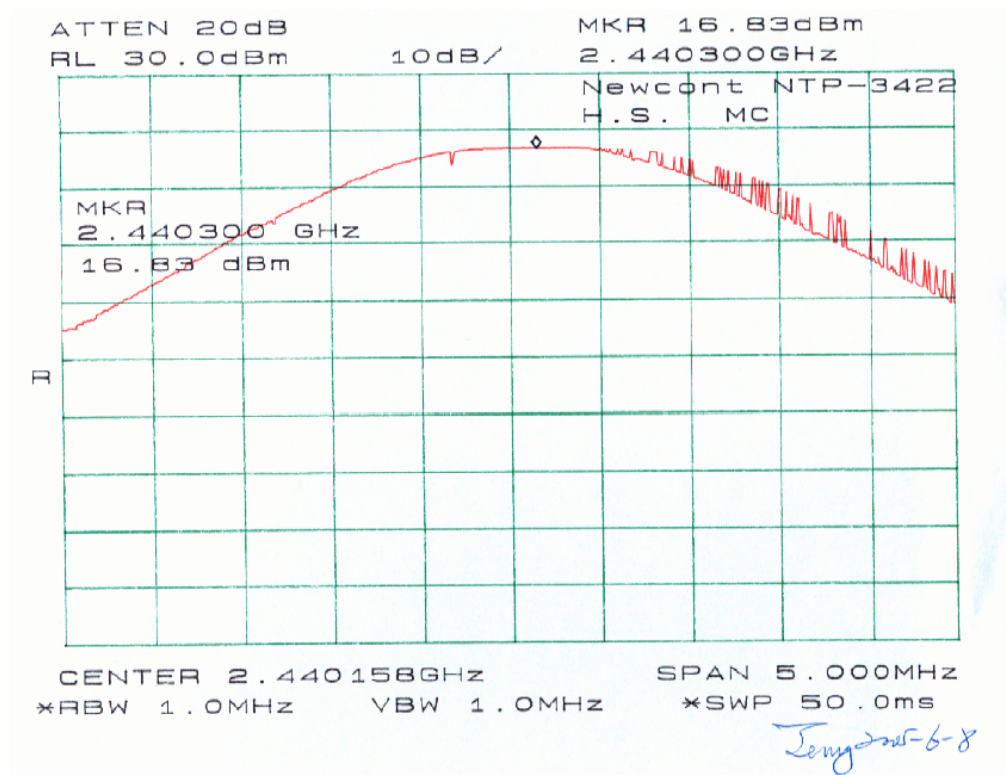Please refer to following plots.

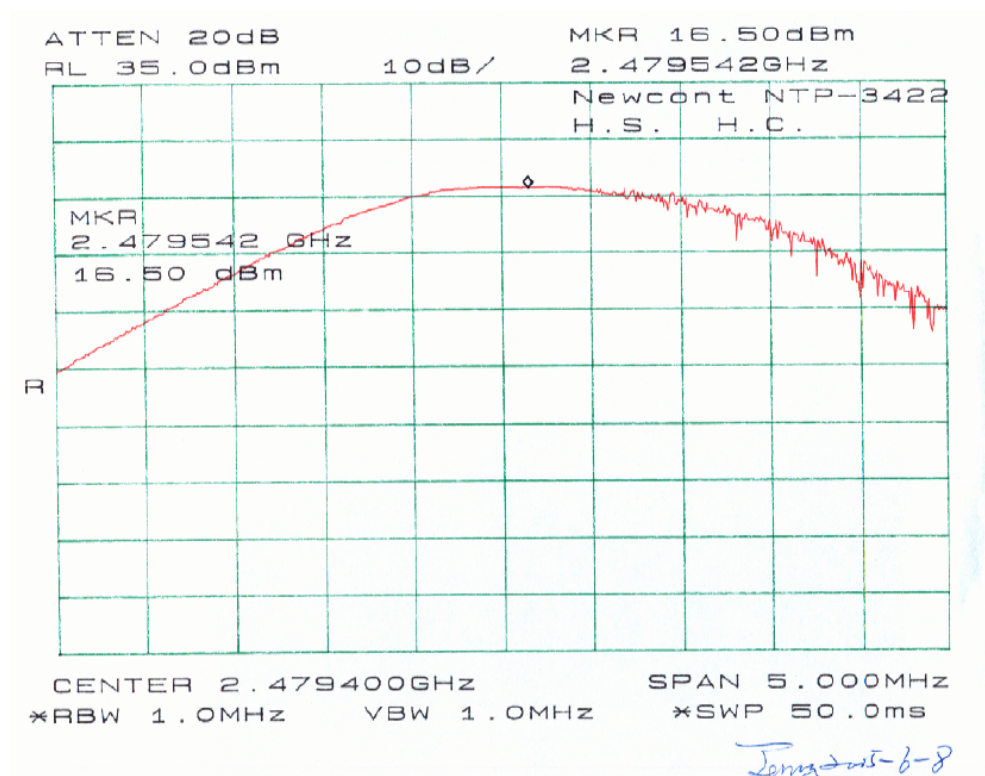Base: Low Channel
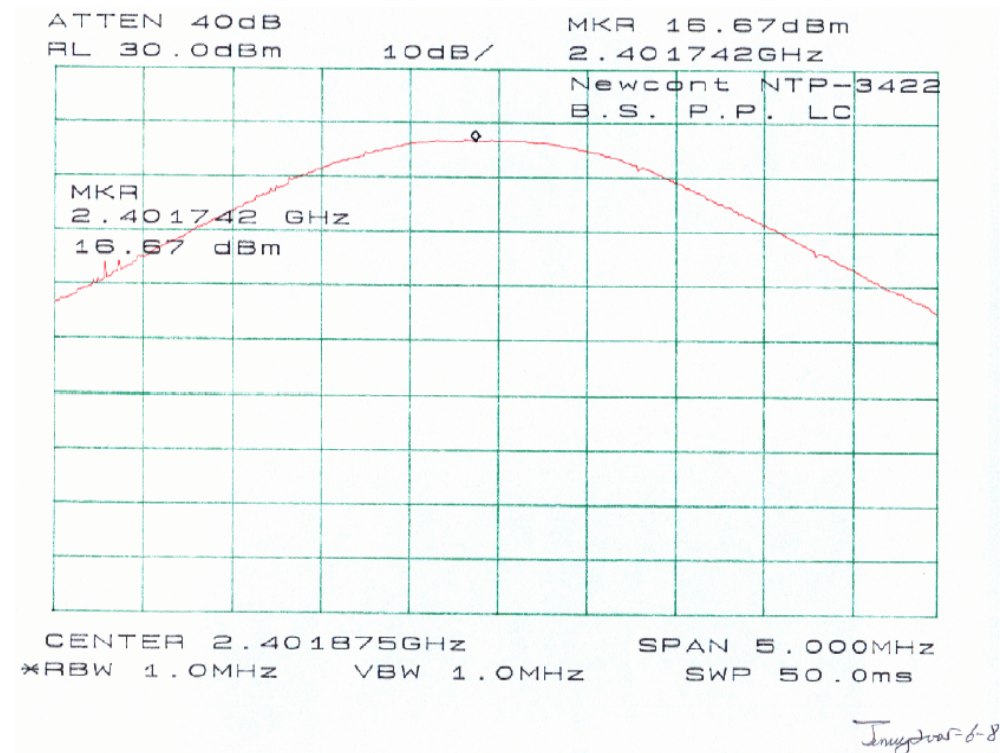
Middle Channel

Base: High Channel


```
ATTEN  40dB                          MKR  17.17dBm
RL  30.0dBm          10dB/           2.479342GHz
                                     Newcont  NTP-3422
                                     B.S.  P.P   HC

MKR
2.479342  GHz
17.17  dBm




CENTER  2.479400GHz              SPAN  5.000MHz
*RBW  1.0MHz      VBW  1.0MHz      SWP  50.0ms
```

Handset: Low Channel


```
ATTEN  40dB                          MKR  15.67dBm
RL  30.0dBm          10dB/           2.401508GHz
                                     Newcont  NTP-3422
                                     H.S.  P.P.  LC

MKR
2.401508  GHz
15.67  dBm




CENTER  2.401875GHz              SPAN  5.000MHz
*RBW  1.0MHz      VBW  1.0MHz      SWP  50.0ms
```
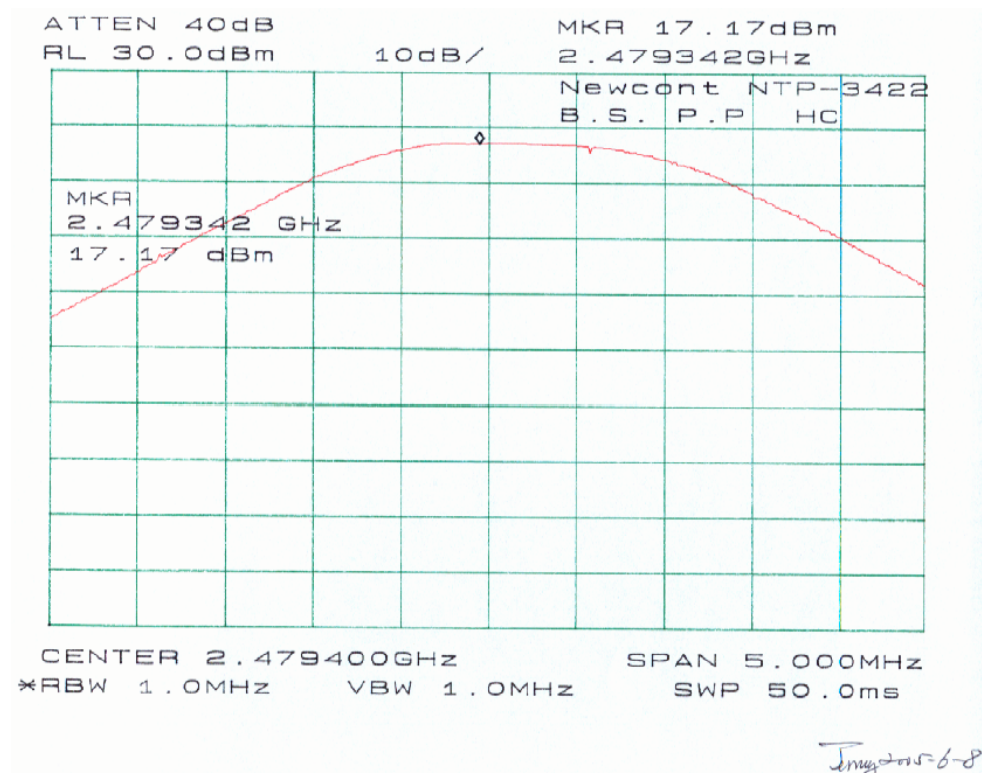
Handset: Middle Channel

High Channel

§15.247 (b)(5) - RF EXPOSURE

According to §15.247(b)(5) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f^2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-15000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

MPE Prediction

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Base:

Maximum peak output power at antenna input terminal: 17.17 (dBm)
Maximum peak output power at antenna input terminal: 52.12 (mW)
Prediction distance: 20 (cm)
Predication frequency: 2400 (MHz)
Antenna Gain (typical): 1 (dBi)
Maximum antenna gain: 1.26 (numeric)
Power density at predication frequency at 20 cm: 0.013(mW/cm^2)
MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm^2)

Test Result

The predicted power density level at 20 cm is 0.013 mW/cm^2. This is below the uncontrolled exposure limit of 1mW/cm^2 at 2400 MHz. The EUT is used at least 20cm away from user's body. It is determined as mobile equipment.

Handset:

Please see the plots hereinafter for duty cycle measurement.
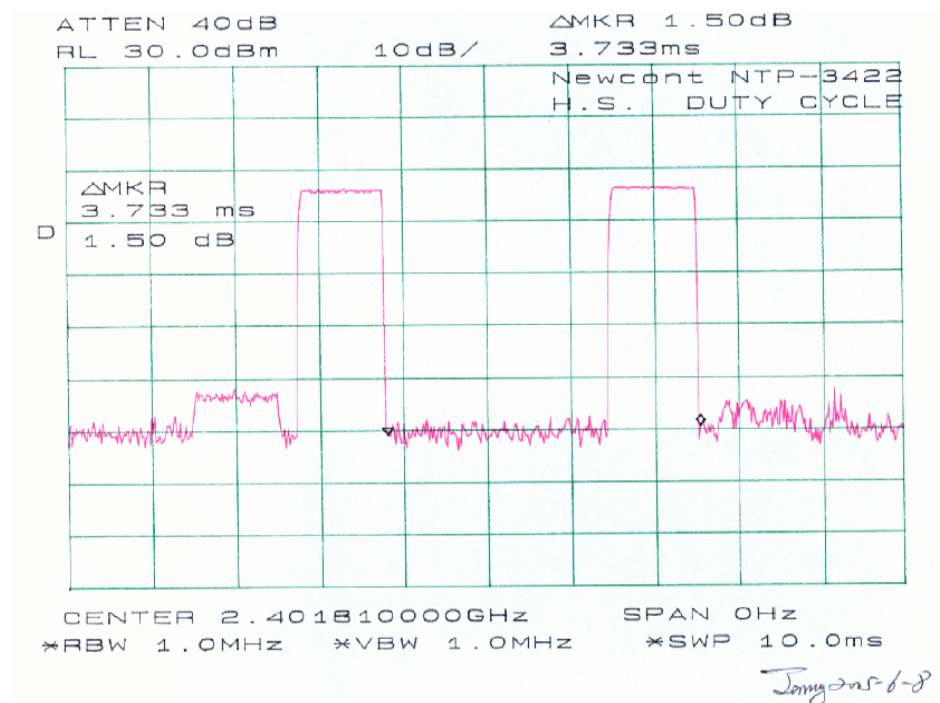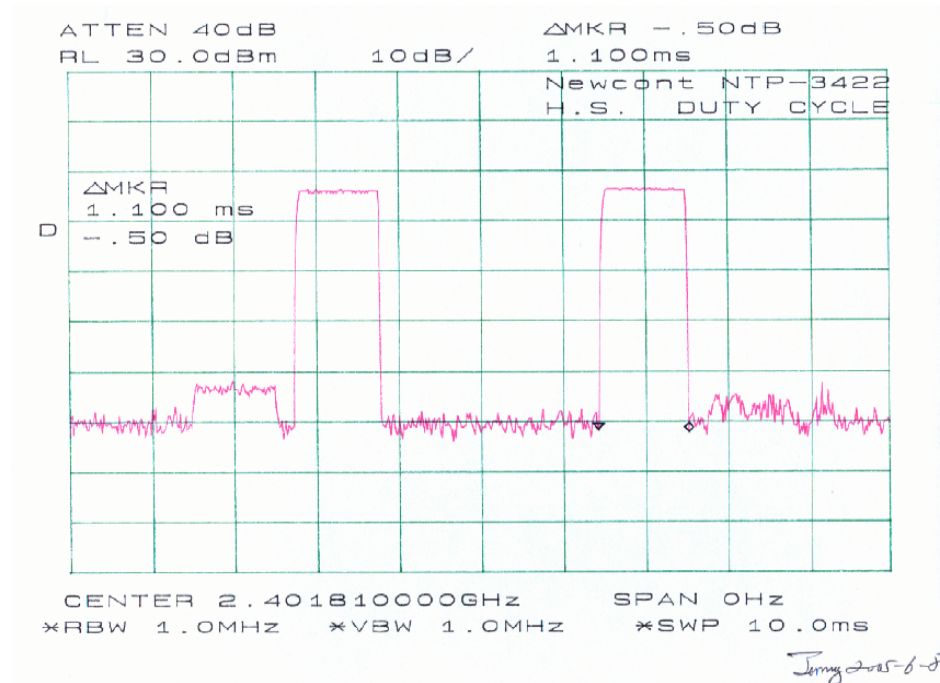
Duty Cycle = TXon / (TXon + TXoff) = 1.1/3.733
Antenna Gain = 2dBi
d < 2.5cm
Average Power = Peak Power x duty cycle = 48.41mW x 1.1/3.733 = 14.26mW < (60/2.4) mW

Therefore, according to the exclusion list, no SAR testing is needed.